

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
10 June 2004 (10.06.2004)

PCT

(10) International Publication Number
WO 2004/048762 A1

(51) International Patent Classification⁷: **F02D 41/14**,
35/02, G01M 15/00

(21) International Application Number:
PCT/GB2003/004522

(22) International Filing Date: 20 October 2003 (20.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0227672.3 27 November 2002 (27.11.2002) GB

(71) Applicant (for all designated States except US): **RICARDO CONSULTING ENGINEERS LIMITED**
[GB/GB]; Bridge Works, Shoreham-by-Sea, West Sussex
BN43 5FG (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CORNWELL, Richard, Charles, Elliot** [GB/GB]; 3 Gordon Road,
Shoreham-by-Sea, West Sussex, BN43 6WF (GB).

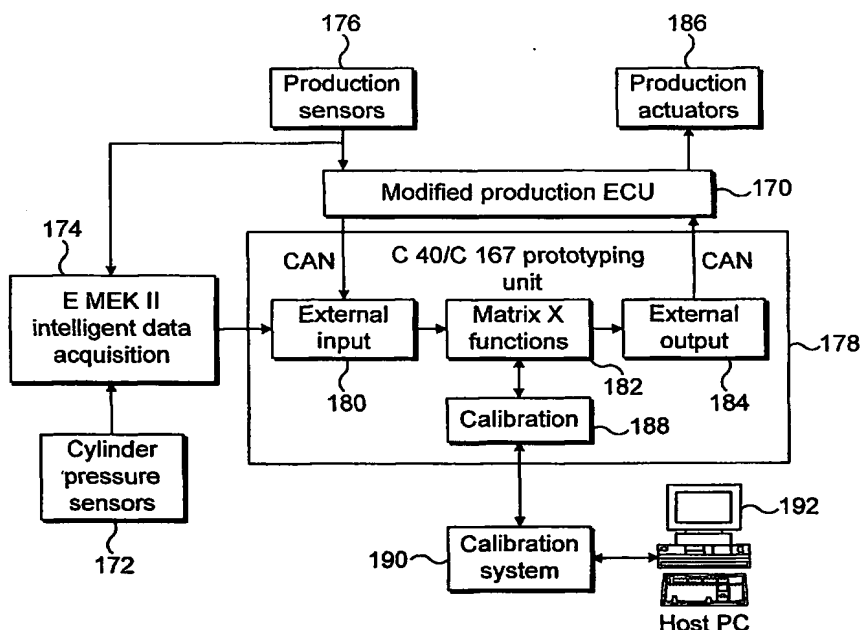
WINSLETT, Colin, Edward [GB/GB]; 47 Preston
Grange, Grange Close, Brighton BN1 6BH (GB). **NO-
BLE, Andrew, David** [GB/GB]; 13 Church Mead,
Steyning, West Sussex BN44 3ST (GB). **COOPER,
Brian, Gorman** [GB/GB]; Flat 10, Amy Court, 22 Albany
Road, Merstham, Surrey, RH1 3LS (GB). **TRUSCOTT,
Anthony** [GB/GB]; 15 gainsborough Avenue, Worthing,
West Sussex BN14 8QR (GB). **GREENWOOD, David**
[GB/GB]; 36 Connaught Avenue, Shoreham-by-Sea, West
Sussex BN43 5WJ (GB). **DI LIETO, Nicola** [IT/GB]; 77
Worcester Drive, Didcot OX11 8UR (GB).

(74) Agents: **ROBERTS, Gwilym, Vaughan et al.**; Kilburn &
Strode, 20 Red Lion Street, London WC1R 4PJ (GB).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,
SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: IMPROVED ENGINE MANAGEMENT



(57) Abstract: An in-cylinder pressure sensor obtains a high resolution pressure curve for each cylinder cycle allowing the various data to be derived for improved monitoring and control of operation of the engine. A more accurate measure of work done by the engine is obtained allowing more accurate estimation of the vehicle torque and hence real torque control. In addition engine losses can be more accurately calculated and the estimates corrected yet further by obtaining an accurate top dead centre position for the engine cylinders.



(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.